



South Carolina Conservation Cover – Technical Guidance (Using native species, wildlife habitat emphasis) 327(a)

Definition

Establishing and maintaining permanent vegetative cover using herbaceous plant species native to the Southeastern United States and South Carolina.



Big bluestem (*Andropogon gerardii*)

Purpose

This practice may be applied to accomplish one or more of the following:

- Reduce soil erosion and sedimentation.
- Improve water quality.
- Improve air quality
- Enhance wildlife habitat.
- Improve soil quality
- Manage plant pests

Native herbaceous plant species (Grasses, Legumes, and Forbs) provide valuable conservation cover while providing quality habitat for game and non-game wildlife species. Native warm-season grasses have a bunch-like growth form which facilitates easy travel and escape from predators for northern bobwhite (quail), songbirds, and small mammals; while also providing nest sites for ground-dwelling birds. These grass species reach heights of up to 6ft which provides overhead cover. Countless wildlife species forage on seeds of native panic grasses and wild ryes. Native legumes and forbs can provide food and cover as well as attract insects, which are an important diet component of ground nesting birds. These plants also provide similar benefits to larger species such as deer and wild turkey. If management of areas planted to conservation cover is delayed until late winter or early spring, standing dead stems will provide needed winter cover and seeds for a variety of wintering and resident songbirds. Native wildflowers (legumes and forbs) like asters, sunflowers, tickseeds, coneflowers, primroses, vetches, mints, milkweeds, and peas attract native pollinators such as butterflies, moths, and bees and would therefore be beneficial to adjacent crops needing pollination. Crops that require these pollinators include apples, asparagus, broccoli, carrots, cauliflower, celery, cucumbers, onions, legume seeds, pumpkins, squash, sunflowers, citrus fruits, peanuts, cotton, and soybeans.

Condition where practice applies

This practice applies on all lands needing permanent vegetative cover and erosion control plantings. This practice does not apply to plantings for forage production or to typical critical area plantings. This practice is not to be used as part of a planned rotation or grazing system.

General Criteria and Specifications

Planting

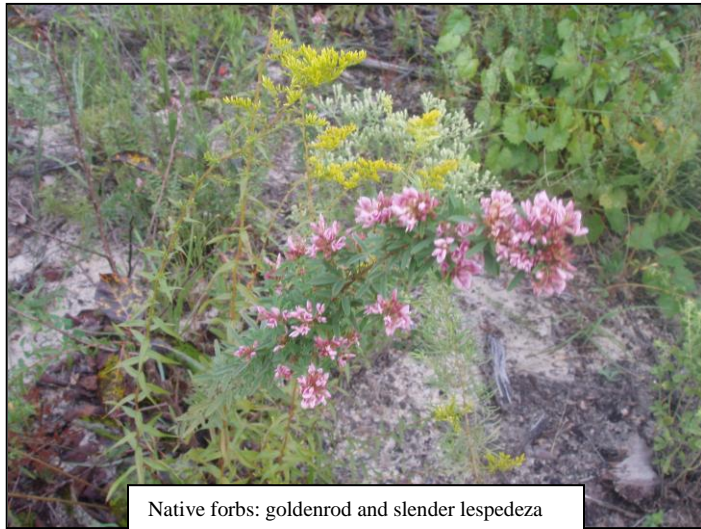
A minimum of 3 native grasses or 2 native grasses and 1 forb or legume shall be planted. To promote higher diversity, additional species of native grasses, forbs, and legumes can be added in a mix. This greatly enhances habitat for songbirds, northern bobwhite (quail), wild turkey, and pollinators. The species selected shall be chosen from the approved lists in Tables 1 and 2.

Use the 3 Habitat Categories to guide species selection based on the site conditions

1. upland fields and buffers and/or in thinned or newly planted longleaf pine stands,
2. woodland understory or along shady forested access roads,
3. wetlands, wetland edges, streambanks. **These designations are found in Tables 1 & 2.**

REQUIREMENTS

- Evaluate the site to be sure native grasses and forbs are not already present. The site may only need management like prescribed burning to promote native species.
- Establishment requires planning and attention to details at planting time.
- Mixture of 3 grasses or 2 Grasses and 1 Forb or Legume, or more, from the lists in Tables 1 and 2
- A cultivated seedbed should be prepared and either rained on or packed using a culti-packer or other similar device. On sites where equipment can operate on slopes safely, the seedbed shall be adequately loosened (4 to 6 inches deep) and smoothed. Other methods resulting in a clean, firm seedbed without excessive weedy competition can be used.
- Soil PH should be above 5.5 (6.5 is best). Get a soil test to determine whether or not to add lime.
- Nitrogen is not recommended at planting since it will encourage undesirable plant competition. Nitrogen can be applied after seedling emergence (mid-year) at 30-50 lbs/acre.
- Phosphate and Potash can be added at planting if needed. Native warm-season grasses do well on soils testing 20 to 35 pounds of Phosphorus per acre.
- **It is critical to the success of planted native species that competing invasive or sod-forming grasses be eradicated before planting.** Exotic grasses tend to shade out the later-emerging seedlings of natives. Use herbicides (i.e. glyphosate, imazapyr, metsulfuron methyl, clethodim, sulfosulfuron, imazapic, paraquat or others) as needed to control existing or anticipated weeds (including fescue, bahia, bermuda, crabgrass, Johnson grass, Vasey's grass, etc.). **Take the time to identify what problem plant species are present 1 year before planting. If needed, 2**



Native forbs: goldenrod and slender lespedeza

treatments should be completed the previous summer before planting. An additional treatment may be needed just before planting in the spring. Note: If legumes are present there is a possibility that they will be eliminated if herbicides are used after establishment.

- Use of Herbicides is especially critical during preparation when planting on a previous pasture or hayfield site where non-native sod-forming were previously established. Several treatments may be needed before planting should occur. See "Controlling Non-native Grasses 595" jobsheet.
- All pesticides must be registered for use in South Carolina and approved for use by the U.S. Environmental Protection Agency (EPA). Refer to the 2007 SC Weed Management Guide prepared by the Clemson University Extension Service, for guidelines, rules and regulations regarding use of pesticides or the TNC Weed Management Handbook for pesticide information (EFOTG/section 1/reference list). Users must **always** follow instructions and safety precautions on the container label when handling, applying, or storing pesticides.
- Plant March 1 thru May, depending on conditions (April is usually best, fall plantings can be successful too).
- Preferred planting methods are broadcasting with a spin spreader, drop seeder, cyclone seeder or the Truax Slinger. Several trips across the area may be needed to ensure adequate coverage. No-till or grain drills may be used, although the fluffy seeds and set-up may be a challenge. Gamagrass must be planted with a corn planter with a sunflower plate or fingers depending on type of planter.
- If broadcasting fluffy seeds a carrier can be used (wheat, oats, lime, or kitty litter). Use about a bushel, no more, of wheat or oats per acre. Any more than a bushel will cause unwanted competition. Mix lime per soil test and broadcast.
- Plant native grasses and forbs at a bulk rate adequate to provide the quantity of Pure Live Seed (PLS) per acre specified. This is important. These plants often have very low germination rates. If 6 lbs of pure live seed per acre is the recommendation and the germination rate is 50%, farmers will have to plant a total of 12 lbs of seed per acre.
- ♦ PLS-based seed purchases are recommended to ensure the proper seed quantity and quality are obtained. Vendors will sell seed on a PLS basis, when requested. The amount of bulk seed delivered with a PLS based order will be considerably higher than the weight of PLS contained in the bag, due to the presence of foreign matter and non-living seeds.
 - Seed planting equipment must be set to plant the bulk seed at a rate that ensures equal distribution of Pure Live Seeds across the field. The planter must be adjusted to deliver the needed Bulk Rate that is determined by:

$$\frac{\text{____ lbs. Bulk Seed to plant /acre}}{\text{(Planter Setting)}} = \frac{\text{____ lbs. PLS/acre (from plan)}}{\text{____ \% germination x ____ \% purity (from tag)}}$$

- Failure to properly adjust the planter will result in an inadequate stand.

- If broadcasting: After planting, lightly brush over the broadcasted area by dragging a light fence or pine branches. Appropriate broadcasting methods will leave 30% of the seed visible on top of the

soil surface. If the seedbed is not too soft, a culti-packer can be used after planting (the seeds may be pushed too deep if the seedbed is too soft).

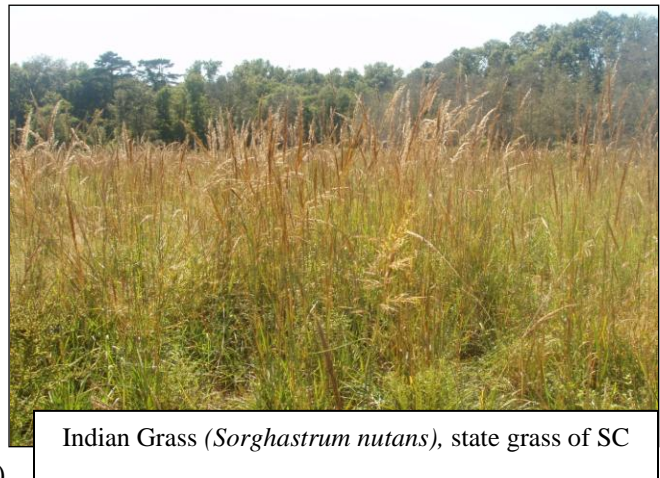
- Planting depth is ¼ to ½ inch. **Use Care Not to Plant to DEEP!** Planting depth is critical. All native grasses and forbs need to be planted at 1/4 inch deep, except for eastern gamagrass which needs to be planted at ½ inch deep.

Considerations

- In situations where target site is sloped (> 6%) and has high erosion potential, mulch newly seeded area with 1 ton per acre of mulch material. Straw mulch shall consist of wheat, barley, oat or rye grain straw, hay, or grass cut from native grasses. Mulch must not contain noxious or invasive weeds.
- In situations where target site is sloped (> 6%) a small grain crop can be planted as a quickly establishing companion crop at the rate of 5 pounds per acre (use wheat, barley, oats, rye grain, or browntop millet).
- In general the recommended seeding rate for establishing wildlife habitat is 6 lb. PLS/ac. A recommended seeding rate for erosion control is 8-12 lb. PLS/ac. Consider the specific resource concern when selecting species (refer to table on next page) and deciding on seeding rates and mixes. For erosion control, apply nitrogen when a stand is established (1st year) at 40-50 pounds per acre (mid-year); for maintenance apply 20-25 pounds per acre as growth begins and 20-25 pounds per acre in the middle of the growing season. Consider using grass species that establish quickly as shown in Table 1 for erosion control plantings.
- **Make sure all planting equipment is cleaned prior to use on site to prevent seeds, rhizomes or other material from invasive exotic plants from being brought to the site.**

Maintenance

- If weeds reach a height of 18 inches, mowing or spraying herbicides shall be utilized to control competition. If mowed do not cut below 6 inches to prevent injury to the desired plants.
- Establishment may take 1- 3 years. **So be patient!!!** (Some species establish faster, see table)
- Begin to burn or mow every 2-3 years after stand is established.
- If mowed, do not cut below 6 inches or you could destroy the stand and it will tend to thicken the grasses. **Therefore mowing should be the last option.**
- Burn or mow beginning February 1st thru April 1st to minimize the impact to ground nesting and wintering birds. Lightly disk in sections if needed to manage extremely thick stands.
- Burn only 1/3 of the area every year on a 3-year rotation in order to leave cover for wildlife.
- Maintain original size of fields or field border(s).
- Inspect after major storms, remove trapped sediment, and repair eroding areas. Shut off pesticide sprayers when turning on a field border.



- Noxious weeds in fields established to conservation cover will be controlled by mowing, fire, tillage, or herbicides as appropriate. Herbicides are recommended as the best alternative because of long lasting effects. Treat only portions of the field needing weed control (spot treatment).

Table 1. Native grasses for Conservation Cover		* Habitat in which to use	Soil Moisture/Light Requirements	Seeding Rate (lbs. PLS*** per acre)
Common Name (grasses)	Scientific Name			
Switchgrass**	<i>Panicum virgatum</i>	1,3	low to high, full sun	1 lbs/ac (10-20% in mix)
Atlantic Coast Panic Grass**	<i>Panicum amarum</i>	1	low , full sun	2 lbs/ac (5-25% in mix)
Indian grass**	<i>Sorghastrum nutans</i>	1	low to moderate, full sun	2 lbs/ac (10-30% in mix)
Little Bluestem**	<i>Schizachyrium scoparium</i> (<i>Andropogon scoparius</i>)	1	low, full sun	3 lbs/ac (10-30% in mix)
Big Bluestem**	<i>Andropogon gerardii</i>	1	low to moderate, full	2 lbs/ac (5-10% in mix)
Bushy Bluestem**	<i>Andropogon glomeratus</i>	1, 3	moderate to high, full sun	0.5-1 lbs/ac (5-10% in mix)
Split-Beard Bluestem**	<i>Andropogon ternarius</i>	1	low, full sun	0.5-1 lbs/ac (5-10% in mix)
Eastern Gama Grass**	<i>Tripsacum dactyloides</i>	1, 3	moderate to high, full sun	2 lbs/ac (10-30% in mix)
Purple Top**	<i>Tridens flavus</i>	1	low-moderate, full sun	2 lbs/ac (5-20% in mix)
Shortbeard Plumegrass**	<i>Erianthus contortus</i> (<i>Saccharum contortus</i>)	1, 3	moderate, full sun	0.5-1 lbs/ac
Hair-Awn Muhly, Sweetgrass**	<i>Muhlenbergia capillaris</i>	1	low to moderate, full sun	0.25-0.5 lbs/ac
Purple Lovegrass**	<i>Eragrostis spectabilis</i>	1	low, full sun	0.25-1 lbs/ac
Wiregrass (plugs)**	<i>Aristida stricta</i> (North), <i>Aristida berychiana</i> (South)	1	low, full sun	plugs at 1200-1800/ac (6x6ft - 5x4ft spacing)
Beaked Panic Grass**	<i>Panicum anceps</i>	2, 3	low to moderate, partial shade tolerant	2 lbs/ac (5-25% in mix)
Deer Tongue Panic Grass (Tioga)**^	<i>Panicum clandestinum</i> (<i>Dichanthelium clandestinum</i>)	2, 3	moderate, partial shade tolerant	2 lbs/ac (5-25% in mix)
Fall or Smooth Panic Grass***^	<i>Panicum dichotomiflorum</i>	2, 3	moderate, partial shade tolerant	2 lbs/ac (5-25% in mix)
Virginia Wild Rye^	<i>Elymus virginicus</i>	2, 3	moderate to high, shade tolerant	2 lbs/ac (5-25% in mix)
Silky Wild Rye^	<i>Elymus villosus</i>	1, 2	low, shade tolerant	2 lbs/ac (5-25% in mix)
Canada Wild Rye^	<i>Elymus canadensis</i>	1, 2	low, partial shade tolerant	2 lbs/ac (5-25% in mix)
Riverbank Wild Rye^	<i>Elymus riparius</i>	2, 3	moderate, shade tolerant	2 lbs/ac (5-25% in mix)
Bottlebrush Grass^	<i>Elymus hystrix</i> (<i>Hystrix patula</i>)	2, 3	moderate, shade tolerant	2 lbs/ac (5-25% in mix)
Slender Woodoats	<i>Uniola laxa</i> (<i>Chasmanthium laxum</i>)	2, 3	low to moderate, partial shade tolerant	0.25-1 lbs/ac
River Oats	<i>Uniola latifolia</i> (<i>Chasmanthium latifolia</i>)	2, 3	low to moderate, partial shade tolerant	0.25-1 lbs/ac (1-10% in mix)
Rice Cutgrass	<i>Leersia oryzoides</i>	3	moderate to high, full sun	0.25-1 lbs/ac
Rattlesnake Grass	<i>Glyceria canadensis</i>	3	high, full sun	0.25-1 lbs/ac
* 1. upland fields and buffers, and/or with thinned or newly planted longleaf stands, woodland understory or along shady forested access roads, wetlands, wetland edges, streambanks.		2. 3.	** warm-season bunch grass ^ establishes quickly	*** PLS = Pure Live Seed

Grass species can be used statewide in appropriate habitats; Atlantic Coastal Panic Grass will grow best in the Coastal Plain and Sandhills

Table 2. Native forbs for Conservation Cover		Soil Moisture, Light Requirements	Bloom Months	Seed/Fruit Months	Annual or Perennial	Region Best Suited	* Habitat in which to use	Seeding Rate (lbs. PLS*** per acre)
Common Name	Scientific Name							
Showy Tickseed Sunflower/Bur-marigold	<i>Bidens aristosa</i>	moderate to high, full sun or partial shade	Sep-Oct	Sep-Oct	A	Statewide	1, 2, 3	0.5- 1 lb/ac (2-15% in mix)
Partridge Pea (legume)	<i>Chamaecrista fasciculata</i> / <i>Cassia fasciculata</i>	low, full sun or light shade	Jun-Sep	Jul-Nov	A	Statewide	1, 2	1-2 lbs/ac (5-25% in mix)
Largeflower Tickseed (yellow)	<i>Coreopsis grandiflora</i>	low, full sun	May-Jul	May-Jul	P	Statewide	1	0.5-1 lb/ac (1-10% in mix)
Lance Leaved Coreopsis	<i>Coreopsis lanceolata</i>	low, full sun or light shade	Apr-Jun	Apr-Jun	P	Statewide	1, 2	0.5-1 lb/ac (1-10% in mix)
Illinois Bundleflower (legume from midwest)	<i>Desmanthus illinoensis</i>	moderate, full sun	Jun-Sep	Aug-Oct	P	Statewide	1, 3	0.5-1 lb/ac (5-15% in mix)
Showy Tick-Trefoil (legume)	<i>Desmodium canadense</i>	low to high, full sun or light shade	Jul-Sep	Sep-Oct	P	Mountains, Piedmont	1, 2, 3	0.5-1 lb/ac (5-10% in mix)
Dixie Tick Trefoil / Florida Beggarweed (legume)	<i>Desmodium tortuosum</i>	low, full sun	Jul-Aug	Aug-Oct	A	Piedmont, Coastal Plain	1	0.25 -1 lb/ac (1-10% in mix)
Purple Coneflower	<i>Echinacea purpurea</i>	moderate, full sun	Jun-Aug	Jun-Aug	P	Piedmont, Mountains	1	0.25-1 lb/ac (5-15% in mix)
Indian Blanket/Firewheel red	<i>Gaillardia pulchella</i>	low to moderate, full sun	Apr-Frost	Apr-Frost	A	Coastal Plain, Piedmont	1	0.5-1 lb/ac (5-15% in mix)
Swamp/Narrow-Leaf Sunflower (yellow)	<i>Helianthus angustifolius</i>	moderate, full sun or partial shade	Jul-Frost	Jul-Frost	P	Statewide	1, 2, 3	0.25 -1 lb/ac (1-10% in mix)
Maximilian Sunflower (midwest)	<i>Helianthus maximiliani</i>	moderate, full sun	Jul-Oct	Sep-Frost	P	Statewide	1	0.25 -1 lb/ac (5-15% in mix)
Ox Eye Sunflower (yellow)	<i>Heliopsis helianthoides</i>	low to moderate, full sun	May-Oct	May-Oct	P	Statewide	1	0.5-2 lbs/ac (1-10% in mix)
Lemon Mint (purple)	<i>Monarda citriodora</i>	low to moderate, full sun to partial shade	Jun-Jul	Jul-Aug	A	Coastal Plain, Piedmont	1, 2, 3	0.5-2 lbs/ac (1-10% in mix)
Evening Primrose	<i>Oenothera biennis</i>	low to moderate, full sun to light shade	Jun-Oct	Jun-Oct	P	Statewide	1, 2, 3	0.25-1 lb/ac (1-15% in mix)
Showy Primrose	<i>Oenothera speciosa</i>	low, full sun	Mar-Jul	May-Aug	P	Statewide	1	0.25 -1 lb/ac (1-15% in mix)
Black-Eyed Susan (yellow)	<i>Rudbeckia hirta</i>	low to moderate, full sun	May-Jul	May-Jul	P	Statewide	1	0.5-1 lb/ac (5-10% in mix)
Wild Senna/American Senna (legume)	<i>Senna hebecarpa</i> or <i>marilandica</i>	low to high, full sun to light shade	Jun-Aug	Jul-Oct	P	Statewide	1, 2, 3	0.25 -1 lb/ac (2-15% in mix)
American Vetch (legume)	<i>Vicia americana</i>	low, full sun	April-May	Jun-Aug	P	Statewide	1	0.25 -1 lb/ac (5-15% in mix)
all species are native to SC and the Southeast unless otherwise noted	* 1. upland fields and buffers, and/or with thinned or newly planted longleaf stands, woodland understory or along shady forested access roads, wetlands, wetland edges, streambanks.					2. 3.	*** PLS = Pure Live Seed	

Site Specific Comments and Recommendations: USDA-NRCS**Conservation Cover 327 – Guidance**

Landowner _____ Field number _____

Purpose (check all that apply)	
<input type="checkbox"/> Reduce erosion from wind and water	<input type="checkbox"/> Management of harmful insect populations
<input type="checkbox"/> Soil and water quality protection	<input type="checkbox"/> Provide wildlife food and cover

Layout		Site 1	Site 2	Site 3	Site 4
Field or Border width (feet)					
Field or Border length along edge of field (feet)					
Area (acres)					
Slope (%)					
Species #1	Seeding rate -----				
Species #2	Seeding rate -----				
Species #3	Seeding rate -----				
Species #4	Seeding rate -----				
Lime (tons/acre)					
P ₂ O ₅ (lbs/acre)					
K ₂ O (lbs/acre)					

(Seeding rate= lbs. pure live seed / acre)

Site Preparation

Prepare a firm seedbed. Apply lime as indicated by soil testing. Additional requirements:

Planting Method

Drill grass, forb, and legume seed 1/4 inches deep or broadcast uniformly over area. Establish vegetation according to the specified seeding rate. *If necessary* (for sloped areas > 6% with high erosion potential), mulch newly seeded area with 1,000 lbs per acre of mulch material. Straw mulch shall consist of wheat, barley, oat or rye grain straw, hay, or grass cut from native grasses. Mulch must not contain noxious or invasive weeds. A small grain crop can be planted as a companion crop at the rate of 5 pounds per acre (use wheat, barley, oats, rye grain, or browntop millet) sloped areas > 6% with high erosion potential). Additional requirements:

Operation and Maintenance

Maintain original width and length of field or field border(s). Burn, lightly disk, mow, reseed, and lime as necessary to maintain plant density and vigorous plant growth. Inspect after major storms, remove trapped sediment, and repair eroding areas. Shut off pesticide sprayers when turning on a field border. Additional requirements:

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Black-eyed Susan (*Rudbeckia hirta*)



Lemon Mint (*Monarda citriodora*)